

PCT

RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/516,505

DATE: 12/10/2004 TIME: 14:21:08

Input Set : A:\PTS-0055WO.txt

Output Set: N:\CRF4\12102004\J516505.raw

```
3 <110> APPLICANT: ISIS Pharmaceuticals Inc.
      4
             Eric G. Marcusson
             C. Frank Bennett
             Kenneth W. Dobie
      8 <120> TITLE OF INVENTION: ANTISENSE MODULATION OF EXTRACELLULAR-SIGNAL-REGULATED
KINASE-6 EXPRESSION
     10 <130> FILE REFERENCE: PTS-0055WO
C--> 12 <140> CURRENT APPLICATION NUMBER: US/10/516,505
C--> 12 <141> CURRENT FILING DATE: 2004-12-01
     12 <150> PRIOR APPLICATION NUMBER: 10/348,431
     13 <151> PRIOR FILING DATE: 2003-01-17
                                                                        Does Not Comply
     15 <150> PRIOR APPLICATION NUMBER: 10/174,465
                                                                    Corrected Diskette Needer
     16 <151> PRIOR FILING DATE: 2002-06-17
     18 <160> NUMBER OF SEQ ID NOS: 233
     20 <210> SEQ ID NO: 1
     21 <211> LENGTH: 20
     22 <212> TYPE: DNA
     23 <213> ORGANISM: Artificial Sequence
     25 <220> FEATURE:
     27 <223> OTHER INFORMATION: Antisense Oligonucleotide
     29 <400> SEQUENCE: 1
     30 tecgteateg etecteaggg
                                                                              20
     33 <210> SEQ ID NO: 2
     34 <211> LENGTH: 20
     35 <212> TYPE: DNA
     36 <213> ORGANISM: Artificial Sequence
     38 <220> FEATURE:
     40 <223> OTHER INFORMATION: Antisense Oligonucleotide
     42 <400> SEQUENCE: 2
     43 gtgcgcgcga gcccgaaatc
                                                                              20
     46 <210> SEQ ID NO: 3
     47 <211> LENGTH: 20
     48 <212> TYPE: DNA
     49 <213> ORGANISM: Artificial Sequence
     51 <220> FEATURE:
     53 <223> OTHER INFORMATION: Antisense Oligonucleotide
     55 <400> SEQUENCE: 3
     56 atgcattctq cccccaaqqa
                                                                              20
     59 <210> SEQ ID NO: 4
     60 <211> LENGTH: 1670
     61 <212> TYPE: DNA
     62 <213> ORGANISM: H. sapiens
     64 <220> FEATURE:
```

66 <220> FEATURE:



DATE: 12/10/2004 PATENT APPLICATION: US/10/516,505 TIME: 14:21:08

Input Set : A:\PTS-0055WO.txt

Output Set: N:\CRF4\12102004\J516505.raw

67 <221> NAME/KEY: CDS 68 <222> LOCATION: (34)(1137)	
70 <400> SEQUENCE: 4	
71 ggctctgcgg ggtgggcagc tcccgggcct gcc atg agc tct ccg ccc acc	54
72 Met Ser Ser Pro Pro Thr	
73	
75 cgc agt ggc ttt tac cgc cag gag gtg acc aag acg gcc tgg gag gtg	102
76 Arg Ser Gly Phe Tyr Arg Gln Glu Val Thr Lys Thr Ala Trp Glu Val	
77 10 15 20	
79 cgc gcc gtg tac cgg gac ctg cag ccc gtg ggc tcg ggc gcc tac ggc	150
80 Arg Ala Val Tyr Arg Asp Leu Gln Pro Val Gly Ser Gly Ala Tyr Gly	
81 25 30 35	
83 gcg gtg tgc tcg gcc gtg gac ggc cgc acc ggc gct aag gtt gcc atc	198
84 Ala Val Cys Ser Ala Val Asp Gly Arg Thr Gly Ala Lys Val Ala Ile	
85 40 45 50 55	
87 aag aag ctg tat cgg ccc ttc cag tcc gag ctg ttc gcc aag ctc gcc	246
88 Lys Lys Leu Tyr Arg Pro Phe Gln Ser Glu Leu Phe Ala Lys Leu Ala	
89 60 65 70	
91 tac cgc gag ctg cgc ctg ctc aag cac atg cgc cac gag aac gtg atc	294
92 Tyr Arg Glu Leu Arg Leu Leu Lys His Met Arg His Glu Asn Val Ile	
93 75 80 85	
95 ggg ctg ctg gac gta ttc act cct gat gag acc ctg gat gac ttc acg	342
96 Gly Leu Leu Asp Val Phe Thr Pro Asp Glu Thr Leu Asp Asp Phe Thr	
97 90 95 100	
99 gac ttt tac ctg gtg atg ccg ttc atg ggc acc gac ctg ggc aag ctc	390
100 Asp Phe Tyr Leu Val Met Pro Phe Met Gly Thr Asp Leu Gly Lys Leu	
101 105 110 115	
103 atg aaa cat gag aag cta ggc gag gac cgg atc cag ttc ctc gtg tac	438
104 Met Lys His Glu Lys Leu Gly Glu Asp Arg Ile Gln Phe Leu Val Tyr	
105 120 125 130 135	
107 cag atg atg aag ggg ctg agg tat atc cac gct gcc ggc atc atc cac	486
108 Gln Met Met Lys Gly Leu Arg Tyr Ile His Ala Ala Gly Ile Ile His	
109 140 145 150	
111 aga gac ctg aag ccc ggc aac ctg gct gtg aac gaa gac tgt gag ctg	534
112 Arg Asp Leu Lys Pro Gly Asn Leu Ala Val Asn Glu Asp Cys Glu Leu	
113 155 160 165	
115 aag atc ctg gac ttc ggc ctg gcc agg cag gca gac agt gag atg act	582
116 Lys Ile Leu Asp Phe Gly Leu Ala Arg Gln Ala Asp Ser Glu Met Thr	302
117 170 175 180	
119 ggg tac gtg gtg acc cgg tgg tac cgg gct ccc gag gtc atc ttg aat	630
120 Gly Tyr Val Val Thr Arg Trp Tyr Arg Ala Pro Glu Val Ile Leu Asn	030
121 185 190 195	
	670
123 tgg atc gcg tac acg cag acg gtg gac atc tgg tct gtg ggc tgc atc	678
124 Trp Ile Ala Tyr Thr Gln Thr Val Asp Ile Trp Ser Val Gly Cys Ile 125 200 205 210 215	
	200
127 atg gcg gag atg atc aca ggc aag acg ctg ttc aag ggc agc gac cac	726
128 Met Ala Glu Met Ile Thr Gly Lys Thr Leu Phe Lys Gly Ser Asp His	
129 220 225 230	
131 ctg gac cag ctg aag gag atc atg aag gtg acg ggg acg cct ccg gct	774



DATE: 12/10/2004 PATENT APPLICATION: US/10/516,505 TIME: 14:21:08

Input Set : A:\PTS-0055WO.txt

Output Set: N:\CRF4\12102004\J516505.raw

132 Leu Asp Gln Leu Lys Glu Ile Met Lys Val Thr Gly Thr Pro Pro Ala 235 240 245 245 246 245 246 245 246 245 246 245 246 245 246 245 246 245 245 246 245			
135 gag ttt gtg cag cgg ctg cag agc gat gag gcc aag aac tac atg aag 822 136 Glu Phe Val Gln Arg Leu Gln Ser Asp Glu Ala Lys Asn Tyr Met Lys 137			
136 Glu Phe Val Gln Arg Leu Gln Ser Asp Glu Ala Lys Asn Tyr Met Lys 137 250 255 260 255 260 260 275 260 260 275 260 275			000
137			822
139 ggc ctc ccc gaa ttg gag aag aag aag gat ttt gcc tct atc ctg acc aat 261 140 161 149 149 140 141 265 270 275 270 275 270 275 270 275 270 275 270 275 270 275 270 275 270 275 270 275 270 275 270 275 270 275 270 275 270 275 270 275 270 275 270 275 275 270 275			
140 Gly Leu Pro Glu Leu Glu Lys Lys Asp Phe Ala Ser Ile Leu Thr Asn 141 265 270 275 275 275 275 275 276 276 276 275			870
141			870
143 gca agc cct ctg gct gtg aac ctc ctg gag aag atg ctg gtg ctg gac 918 144 Ala Ser Pro Leu Ala Val Asn Leu Leu Glu Lys Met Leu Val Leu Asp 295 290 295 147 gcg gac atc agg ttg act gca gcg gag ttt ctt tcc cat ccc tac ttc 966 148 Ala Asp Ile Arg Leu Thr Ala Gly Glu Phe Leu Ser His Pro Tyr Phe 300 305 310 151 gag tcc ctg cac gac acg gaa gat gag ccc cag gtc cag aag tat gat 1014 152 Glu Ser Leu His Asp Thr Glu Asp Glu Pro Gln Val Gln Lys Tyr Asp 315 320 325 155 gac tcc ttt gac tac ttt gac cgc aca ctg gat gaa tgg aag cgt gtt 1062 156 Asp Ser Phe Asp Tyr Phe Asp Arg Thr Leu Asp Glu Trp Lys Arg Val 157 330 335 340 159 act tac aaa gag gtg ctc agc ttc aag ccc ccc gcg cag ctg ggg gcc 1110 160 Thr Tyr Lys Glu Val Leu Ser Phe Lys Pro Pro Arg Gln Leu Gly Ala 315 350 335 340 161 345 350 355 335 355 356 163 agg gtc tcc aag gaa gac cct ctg ta agatcttgg gctccgggt 1157 164 Arg Val Ser Lys Glu Thr Pro Leu 165 360 365 365 365 167 ggcagtgagg accaccttca ccttccacct gagaggggac tctcgttgc accttgacct 1217 169 tggctgggg ttgcatcca aggcatccat cagagcagac ctggagggac ctgaacttc 1237 171 cctcccact gccatgcctc tgctctttgg cgccatact ggaggagcac ctgaacttc 1237 172 cctccccact gccatgcctc tgctctttgg cgccatact ggaggagcac ctgaacttc 1237 173 tggacaagac ctctggcca ctgaggatg gcctctgatc cctggagcag tggaacacac 1337 174 agggacatcc cctctcctgg gcgacgtag ggacagaag gacacactc 1517 175 agggacatcc cctctcctgg gcgacgtag ggacgacaacac 1517 176 agggacatcc cctctcctgg gcgacgtag ggacaaaaa 1337 180 agagacatcc cctctcctgg gcgacgtag ggacacacacct 1517 181 aaaacaaaaa aaaaaaaaaa aaaaaaaaaaaaaa			
144 Ala Ser Pro Leu Ala Val Asn Leu Leu Glu Lys Met Leu Val Leu Asp 295 147 gog gac atc agg ttg act goc gag gag ttt ctt cc cat ccc ctc ttc 466 148 Ala Asp Ile Arg Leu Thr Ala Gly Glu Phe Leu Ser His Pro Tyr Phe Jyr Asp 300 305 310 151 gag tcc ctg cac gac agg gag gag ccc cag gac gag tat gat gat gat ccc cag gac agg ccc cag agg tat gat gat gat cac gac gac acc dag gag gac dag tat gat gat gat cac tat gac cac cac dag gag gag gag gac dag tat gat gat gat cac tat gac cac cac dag gag gag			918
145 280 285 290 295 295 296 247 247 247 242			
148		-	
148	147	gcg gac atc agg ttg act gca ggc gag ttt ctt tcc cat ccc tac ttc	966
151 gag tcc ctg cac gac acg gaa gat gag ccc cag gtc cag aag tat gat 1014			
152 Glu Ser Leu His Asp Thr Glu Asp Glu Pro Gln Val Gln Lys Tyr Asp 315 320 325 325 325 325 325 326 325 325 326 325 325 326 325 325 325 326 325	149	300 305 310	
153			1014
155 gac tcc ttt gac tac ttt gac cgc aca ctg gat gaa tgg aag cgt gtt 1062 156 Asp Ser Phe Asp Tyr Phe Asp Arg Thr Leu Asp Glu Trp Lys Arg Val 157 330 335 340 159 act tac aaa gag gtg ctc agc ctc cag cag ctg ggg gcc 110 160 Thr Tyr Lys Glu Val Leu Ser Phe Lys Pro Pro Arg Gln Leu Gly Ala 161 345 350 355 163 agg gtc tcc aag gag acg cct ctg tga agatctctgg gctccggggt 164 Arg Val Ser Lys Glu Thr Pro Leu 165 360 365 167 ggcagtgagg accaccttca ccttccacct gagaggggac tctcgttgcc accttgacct 1217 1217 cctcccact gcatgctc tgctctttgg cgccatcat gagagagac ctgaacttc 1218 tggacaagac cttgaccca aggaatccat cagagcagac gagagagac ctgaacttc 1219 tctccccact gcatgctc tgctctttgg cgccatcat gagagagac ctgaacttc 1217 tctccccact gcatgctc tgctctttgg cgccatcat gagagagac tggaacacaa 1237 tggacaagac cttgagcca ctgagaga gcactgagag tggagcag tggaacacaa 1237 tggacaagac cttgagcca tcagaaggaa ggacagagg tggagcagg tggaacacaa 1237 tggacaagac ctctgggca tggaacacaca tgaacacaca 1238 taaatcagct tgtggtgcc tggaggactca tgaaccacac tgaacacacac 1247 taaatcagct tgtggtgcc cgcgtggctg tggagcacaggg tggagcagg tgaacacacac 1257 taaaacaaaaaa aaaaaaaaaa aaaaaaaaaa	152		
156 Asp Ser Phe Asp Tyr Phe Asp Arg Thr Leu Asp Glu Trp Lys Arg Val			
157			1062
159 act tac aaa gag gtg ctc agc ttc aag cct ccc cgg cag ctg ggg gcc 1110 160 Thr Tyr Lys Glu Val Leu Ser Phe Lys Pro Pro Arg Gln Leu Gly Ala 350 355 163 agg gtc tcc aag gag acg cct ctg tga agatcttgg gctccggggt 1157 164 Arg Val Ser Lys Glu Thr Pro Leu 165 360 365 167 ggcagtgagg accaccttca ccttccacct gagaggggac tctcgttgcc accttgacct 1217 169 tggctggggc ttgcatccca aggcatccat cagagcagac gcccgggttc catggacct 1277 171 cctccccact gccatgcct tgctctttgg cgccatcat ggaggagac ctgaacttc 1337 173 tggacaagac ctctggcga cctggggatg gcctctgatc cctggagcag tggaacacaa 1397 175 aaaacaatac tctcagaaca ctcagagctg gtggggctcc agatcagct tggcctctga 1457 177 gccctgctg ctctgggca tgcagagaag ggacagagg tggaacacaca 1517 181 taaatcagct gtgtggtgcc cgcgtggctg gaaggaaata gacccttttg tagctccaaa 1637 183 aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaa			
160 Thr Tyr Lys Glu Val Leu Ser Phe Lys Pro Pro Arg Gln Leu Gly Ala 161 345 350 355 163 agg gtc tcc aag gag acg cct ctg tga agatctctgg gctccggggt 1157 164 Arg Val Ser Lys Glu Thr Pro Leu 165 360 365 167 ggcagtgagg accaccttca ccttccacct gagaggggac tctcgttgcc accttgacct 1217 169 tggctggggc ttgcatccca aggcatccat cagagcagac gcccgggttc catggaccct 1277 171 cctccccact gccatgcctc tgctctttgg cgcccatcat ggagaggaca ctgaacttc 1337 173 tggacaagac ctctggccga cctggagatg gcctctgatc cctggagaca tggaacacaa 1397 175 aaaacaatac tctcagaaac ctcagagctg gtggggctcc agatcagct tggcctctga 1457 177 gccctgcctg ctctgggcca tgcagaggaa ggacagagg tgggacagg gcaccaact 1517 181 taaatcagct gtgtggtgcc cgcgtggctg gaaggaata gaccctttg tagctccaaa 1637 183 aaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaa 1670 186 <210 > SEQ ID NO: 5 187 <211 > LENGTH: 20 188 <212 > TYPE: DNA 189 <223 > OTHER INFORMATION: PCR Primer 195 <400 > SEQUENCE: 5 196 ctcgttgcca ccttgacctt 20 199 <210 > SEQ ID NO: 6 200 <211 > LENGTH: 16 201 <212 > TYPE: DNA 202 <233 > ORGANISM: Artificial Sequence 204 <220 > FEATURE:			
161 345 350 355 163 agg gtc tcc aag gag acg cct ctg tga agatctctgg gctccggggt 1157 164 Arg Val Ser Lys Glu Thr Pro Leu 165 360 365 167 ggcagtgagg accaccttca ccttccacct gagaggggac tctcgttgcc accttgacct 1217 169 tggctggggc ttgcatccca aggcatccat cagagcagac gcccgggttc catggaccct 1277 171 cctccccact gccatgcctc tgctctttgg cgccatcat ggaggagcac ctgaactttc 1337 173 tggacaagac ctctggccga cctggggatg gcctctgatc cctgagcag tggaacacaa 1397 175 aaaacaatac tctcagaaac ctcagagctg gtggggctcc agatcagct tggcctctga 1457 177 gccctgcctg ctctgggcca tgcagaggag ggacagaggg tgggaacacaa 1517 179 agggacatcc cctctctgg gcgacgtcag tggacctcc tgcacccca gcctggaatg 1577 181 taaatcagct gtgtggtgcc cgcgtggctg gaaggaaata gacccttttg tagctccaaa 1637 183 aaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaa 1670 186 <210 > SEQ ID NO: 5 187 <211 > LENGTH: 20 188 <212 > TYPE: DNA 189 <213 > ORGANISM: Artificial Sequence 191 <220 > FEATURE: 195 <400 > SEQUENCE: 5 196 ctcgttgcca ccttgacctt 20 199 <210 > SEQ ID NO: 6 200 <211 > LENGTH: 16 201 <212 > TYPE: DNA 202 <213 > ORGANISM: Artificial Sequence 204 <220 > FEATURE:			1110
163 agg gtc tcc aag gag acg cct ctg tga agatctctgg gctccggggt 1157 164 Arg Val Ser Lys Glu Thr Pro Leu 165 360 365 167 ggcagtgagg accaccttca ccttccacct gagaggggac tctcgttgcc accttgacct 1217 169 tggctggggc ttgcatccca aggcatccat cagagcagac gcccgggttc catggaccct 1277 171 cctcccact gccatgcctc tgctctttgg cgccatcat ggaggagcac ctgaacttc 1337 173 tggacaagac ctctggcga cctggggatg gcctctgatc cctggagcag tggaacacaa 1397 175 aaaacaatac tctcagaaac ctcagagctg gtggggctcc agatcagct tggcctctga 1457 177 gccctgctg ctctgggcca tgcagaggaa ggacagaggg tgggagcagg gcaccaactc 1517 179 agggacatcc cctctcctgg gcgacgtcag tggacctcc tgcacccca gcctggaatg 1577 181 taaatcagct gtgtggtgcc cgcgtggctg gaaggaaata gaccctttg tagctccaaa 1673 183 aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaa			
164 Arg Val Ser Lys Glu Thr Pro Leu 165 360 365 167 ggcagtgagg accaccttca ccttccacct gagaggggac tctcgttgcc accttgacct 1217 169 tggctggggc ttgcatccca aggcatccat cagagcagac gcccgggttc catggacctc 1277 171 cctccccact gccatgcctc tgctctttgg cgcccatcat ggaggagcac ctgaacttc 1337 173 tggacaagac ctctggcga cctggggatg gcctctgatc cctggagcag tggaacacaa 1397 175 aaaacaatac tctcagaaac ctcagagctg gtggggctcc agatcagcct tggcctctga 1457 177 gccctgcctg ctctgggcca tgcaagagga ggacagaggg tgggagcagg gcaccaactc 1517 179 agggacatcc cctctcctgg gcgacgtcag tggaccttcc tgcacccca gcctggaatg 1577 181 taaatcagct gtgtggtgcc cgcgtggctg gaaggaaata gacccttttg tagctccaaa 1637 183 aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaa			1157
165 360 365 167 ggcagtgagg accaccttca ccttccacct gagagggac tctcgttgcc accttgacct 1217 169 tggctgggc ttgcatccca aggcatccat cagagcagac gcccgggttc catggacct 1277 171 cctccccact gccatgcctc tgctctttgg cgccatcat ggaggagcac ctgaacttc 1337 173 tggacaagac ctctggccga cctggggatg gcctctgatc cctggagcag tggacaccaa 1397 175 aaaacaatac tctcagaacac ctcagagctg gtggggctcc agatcagcct tggcctctga 1457 177 gccctgcctg ctctgggcca tgcagaggag ggacagagg gcaccaactc 1517 179 agggacatcc cctctcctgg gcgacgtcag tggaccttcc tgcacccca gcctggaatg 1577 181 taaatcagct gtgtggtgcc cgcgtggctg gaaggaaata gacccttttg tagctccaaa 1637 183 aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaa			112/
167 ggcagtgagg accaccttca ccttccacct gagaggggac tctcgttgcc accttgacct 1217 169 tggctggggc ttgcatcca aggcatccat cagagcagac gcccgggttc catggaccct 1277 171 cctccccact gccatgcctc tgctctttgg cgcccatcat ggaggagcac ctgaacttcc 1337 173 tggacaagac ctctggccga cctggggatg gcctctgatc cctggagcag tggaacacaa 1397 175 aaaacaatac tctccagaaac ctcagagctg gtggggctcc agatcagcct tggcctctga 1457 177 gcctgcctg ctctgggcca tgcagaggaa ggacagaggg tgggagcagg gcaccaactc 1517 179 agggacatcc cctctcctgg gcgacgtcag tggaccttcc tgcacccca gcctggaatg 1577 181 taaatcagct gtgtggtgcc cgcgtggctg gaaggaaata gacccttttg tagctccaaa 1637 183 aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaa		-	
169 tggctggggc ttgcatcca aggcatcat cagagcagac gcccgggttc catggacct 1277 171 cctcccact gccatgcctc tgctctttgg cgccatcat ggaggagcac ctgaactttc 1337 173 tggacaagac ctctggccga cctggggatg gcctctgatc cctggagcag tggaacacaa 1397 175 aaaacaatac tctcagaaac ctcagagctg gtggggctcc agatcagcct tggcctctga 1457 177 gccctgcctg ctctgggcca tgcagaggaa ggacagaggg tggagacaagg gcaccaactc 1517 179 agggacatcc cctcctcgg gcgacgtcag tggagcttcc tgcacccca gcctggaatg 1577 181 taaatcagct gtgtggtgcc cgcgtggctg gaaggaaata gacccttttg tagctccaaa 1637 183 aaaaaaaaaa aaaaaaaaaa aaaa aaaaaaaaa aaa 1670 186 <210 > SEQ ID NO: 5 187 <211 > LENGTH: 20 188 <212 > TYPE: DNA 189 <213 > ORGANISM: Artificial Sequence 191 <220 > FEATURE: 193 <223 > OTHER INFORMATION: PCR Primer 195 <400 > SEQUENCE: 5 196 ctcgttgcca ccttgacctt 20 201 <211 > LENGTH: 16 201 <212 > TYPE: DNA 202 <213 > ORGANISM: Artificial Sequence 204 <220 > FEATURE:			1217
171 cctcccact gccatgcctc tgctctttgg cgcccatcat ggaggagcac ctgaactttc 1337 173 tggacaagac ctctggccga cctggggatg gcctctgatc cctggagcag tggaacacaa 1397 175 aaaacaatac tctcagaaac ctcagagctg gtggggctcc agatcagcct tggcctctga 1457 177 gccctgcctg ctctgggcca tgcagaggaa ggacagaggg tgggagcagg gcaccaactc 1517 179 agggacatcc cctctcctgg gcgacgtcag tggaccttcc tgcacccca gcctggaatg 1577 181 taaatcagct gtgtggtgcc cgcgtggctg gaaggaaata gacccttttg tagctccaaa 1637 183 aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaa			
173 tggacaagac ctctggccga cctggggatg gcctctgatc cctggagcag tggaacacaa 1397 175 aaaacaatac tctcagaaac ctcagagctg gtggggctcc agatcagcct tggcctctga 1457 177 gccctgcctg ctctgggcca tgcagaggaa ggacagaggg tgggagcagg gcaccaactc 1517 179 agggacatcc cctctcctgg gcgacgtcag tggaccttcc tgcacccca gcctggaatg 1577 181 taaatcagct gtgtggtgcc cgcgtggctg gaaggaaata gacccttttg tagctccaaa 1637 183 aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaa			
177 gccctgcctg ctctgggcca tgcagaggaa ggacagaggg tgggagcagg gcaccaactc 1517 179 agggacatcc cctctcctgg gcgacgtcag tggaccttcc tgcacccca gcctggaatg 1577 181 taaatcagct gtgtggtgcc cgcgtggctg gaaggaaata gacccttttg tagctccaaa 1637 183 aaaaaaaaaaa aaaaaaaaaaa aaaaaaaaaa aaa 1670 186 <210 > SEQ ID NO: 5 187 <211 > LENGTH: 20 188 <212 > TYPE: DNA 189 <213 > ORGANISM: Artificial Sequence 191 <220 > FEATURE: 193 <223 > OTHER INFORMATION: PCR Primer 195 <400 > SEQUENCE: 5 196 ctcgttgcca ccttgacctt 20 199 <210 > SEQ ID NO: 6 201 <212 > TYPE: DNA 202 <213 > ORGANISM: Artificial Sequence 204 <220 > FEATURE:			1397
179 agggacatcc cctctcctgg gcgacgtcag tggaccttcc tgcacccca gcctggaatg 1577 181 taaatcagct gtgtggtgcc cgcgtggctg gaaggaaata gacccttttg tagctccaaa 1637 183 aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaa	175	aaaacaatac tctcagaaac ctcagagctg gtggggctcc agatcagcct tggcctctga	1457
181 taaatcagct gtgtggtgcc cgcgtggctg gaaggaaata gacccttttg tagctccaaa 1637 183 aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaa			1517
183 aaaaaaaaa aaaaaaaaa aaaaaaaaa aaa 1670 186 <210> SEQ ID NO: 5 187 <211> LENGTH: 20 188 <212> TYPE: DNA 189 <213> ORGANISM: Artificial Sequence 191 <220> FEATURE: 193 <223> OTHER INFORMATION: PCR Primer 195 <400> SEQUENCE: 5 196 ctcgttgcca ccttgacctt 20 199 <210> SEQ ID NO: 6 200 <211> LENGTH: 16 201 <212> TYPE: DNA 202 <213> ORGANISM: Artificial Sequence 204 <220> FEATURE:			
186 <210> SEQ ID NO: 5 187 <211> LENGTH: 20 188 <212> TYPE: DNA 189 <213> ORGANISM: Artificial Sequence 191 <220> FEATURE: 193 <223> OTHER INFORMATION: PCR Primer 195 <400> SEQUENCE: 5 196 ctcgttgcca ccttgacctt 20 199 <210> SEQ ID NO: 6 200 <211> LENGTH: 16 201 <212> TYPE: DNA 202 <213> ORGANISM: Artificial Sequence 204 <220> FEATURE:			
187 <211> LENGTH: 20 188 <212> TYPE: DNA 189 <213> ORGANISM: Artificial Sequence 191 <220> FEATURE: 193 <223> OTHER INFORMATION: PCR Primer 195 <400> SEQUENCE: 5 196 ctcgttgcca ccttgacctt 20 199 <210> SEQ ID NO: 6 200 <211> LENGTH: 16 201 <212> TYPE: DNA 202 <213> ORGANISM: Artificial Sequence 204 <220> FEATURE:			1670
188 <212> TYPE: DNA 189 <213> ORGANISM: Artificial Sequence 191 <220> FEATURE: 193 <223> OTHER INFORMATION: PCR Primer 195 <400> SEQUENCE: 5 196 ctcgttgcca ccttgacctt 20 199 <210> SEQ ID NO: 6 200 <211> LENGTH: 16 201 <212> TYPE: DNA 202 <213> ORGANISM: Artificial Sequence 204 <220> FEATURE:			
189 <213> ORGANISM: Artificial Sequence 191 <220> FEATURE: 193 <223> OTHER INFORMATION: PCR Primer 195 <400> SEQUENCE: 5 196 ctcgttgcca ccttgacctt 20 199 <210> SEQ ID NO: 6 200 <211> LENGTH: 16 201 <212> TYPE: DNA 202 <213> ORGANISM: Artificial Sequence 204 <220> FEATURE:			
191 <220> FEATURE: 193 <223> OTHER INFORMATION: PCR Primer 195 <400> SEQUENCE: 5 196 ctcgttgcca ccttgacctt 20 199 <210> SEQ ID NO: 6 200 <211> LENGTH: 16 201 <212> TYPE: DNA 202 <213> ORGANISM: Artificial Sequence 204 <220> FEATURE:			
193 <223> OTHER INFORMATION: PCR Primer 195 <400> SEQUENCE: 5 196 ctcgttgcca ccttgacctt 20 199 <210> SEQ ID NO: 6 200 <211> LENGTH: 16 201 <212> TYPE: DNA 202 <213> ORGANISM: Artificial Sequence 204 <220> FEATURE:			
195 <400> SEQUENCE: 5 196 ctcgttgcca ccttgacctt 20 199 <210> SEQ ID NO: 6 200 <211> LENGTH: 16 201 <212> TYPE: DNA 202 <213> ORGANISM: Artificial Sequence 204 <220> FEATURE:			
196 ctcgttgcca ccttgacctt 20 199 <210> SEQ ID NO: 6 200 <211> LENGTH: 16 201 <212> TYPE: DNA 202 <213> ORGANISM: Artificial Sequence 204 <220> FEATURE:			
199 <210> SEQ ID NO: 6 200 <211> LENGTH: 16 201 <212> TYPE: DNA 202 <213> ORGANISM: Artificial Sequence 204 <220> FEATURE:			20
200 <211> LENGTH: 16 201 <212> TYPE: DNA 202 <213> ORGANISM: Artificial Sequence 204 <220> FEATURE:		-, -	
202 <213> ORGANISM: Artificial Sequence 204 <220> FEATURE:			
204 <220> FEATURE:	201	<212> TYPE: DNA	
206 <223> OTHER INFORMATION: PCR Primer			
	206	<223> OTHER INFORMATION: PCR Primer	



PATENT APPLICATION: US/10/516,505

DATE: 12/10/2004 TIME: 14:21:08

Input Set : A:\PTS-0055WO.txt

Output Set: N:\CRF4\12102004\J516505.raw

208 <400> SEQUENCE: 6	
209 tggaacccgg gcgtct	16
212 <210> SEQ ID NO: 7	
213 <211> LENGTH: 24	
214 <212> TYPE: DNA	* *
215 <213> ORGANISM: Artificial Sequence	
217 <220> FEATURE:	
219 <223> OTHER INFORMATION: PCR Probe	
221 <400> SEQUENCE: 7	
222 ttgcatccca aggcatccat caga	24
225 <210> SEQ ID NO: 8	
226 <211> LENGTH: 19	
227 <212> TYPE: DNA	
228 <213> ORGANISM: Artificial Sequence	
230 <220> FEATURE:	
232 <223> OTHER INFORMATION: PCR Primer	
234 <400> SEQUENCE: 8	
235 gaaggtgaag gtcggagtc	19
238 <210> SEQ ID NO: 9	
239 <211> LENGTH: 20	
240 <212> TYPE: DNA	
241 <213> ORGANISM: Artificial Sequence	
243 <220> FEATURE:	
245 <223> OTHER INFORMATION: PCR Primer	
247 <400> SEQUENCE: 9	
248 gaagatggtg atgggatttc	20
251 <210> SEQ ID NO: 10	
252 <211> LENGTH: 20	
253 <212> TYPE: DNA	
254 <213> ORGANISM: Artificial Sequence	
256 <220> FEATURE:	
258 <223> OTHER INFORMATION: PCR Probe	
260 <400> SEQUENCE: 10	
261 caagetteee gtteteagee	20
264 <210> SEQ ID NO: 11	
265 <211> LENGTH: 20	
266 <212> TYPE: DNA	
267 <213> ORGANISM: Artificial Sequence	
269 <220> FEATURE:	
271 <223> OTHER INFORMATION: Antisense Oligonucleotide	
273 <400> SEQUENCE: 11	
274 ccttcatcat ctggtacacg	20`
277 <210> SEQ ID NO: 12	
278 <211> LENGTH: 20	
279 <212> TYPE: DNA	
280 <213> ORGANISM: Artificial Sequence	
282 <220> FEATURE:	
284 <223> OTHER INFORMATION: Antisense Oligonucleotide	
286 <400> SEQUENCE: 12	



DATE: 12/10/2004

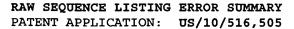
TIME: 14:21:08

RAW SEQUENCE LISTING PATENT APPLICATION: US/10/516,505

Input Set : A:\PTS-0055WO.txt
Output Set: N:\CRF4\12102004\J516505.raw

297	taattaagat gataaagata	20
	tccttcagct ggtccaggtg <210> SEQ ID NO: 13	20
	<211> LENGTH: 20	
	<212> TYPE: DNA	
	<213> ORGANISM: Artificial Sequence	
	<220> FEATURE:	
	<223> OTHER INFORMATION: Antisense Oligonucleotide	
	<400> SEQUENCE: 13	
	ccaccagete tgaggtttet	20
	<210> SEQ ID NO: 14	20
	<211> LENGTH: 20	
	<212> TYPE: DNA	
	<213> ORGANISM: Artificial Sequence	
	<220> FEATURE:	
	<223> OTHER INFORMATION: Antisense Oligonucleotide	
	<400> SEQUENCE: 14	
	ggagagetea tggeaggeee	20
	<210> SEQ ID NO: 15	
	<211> LENGTH: 20	
318	<212> TYPE: DNA	
	<213> ORGANISM: Artificial Sequence	
	<220> FEATURE:	
323	<223> OTHER INFORMATION: Antisense Oligonucleotide	
	<400> SEQUENCE: 15	
326	gtggcgcatg tgcttgagca	20
	<210> SEQ ID NO: 16	
	<211> LENGTH: 20	
331	<212> TYPE: DNA	
332	<213> ORGANISM: Artificial Sequence	
334	<220> FEATURE:	
336	<223> OTHER INFORMATION: Antisense Oligonucleotide	
338	<400> SEQUENCE: 16	
339	cccttcatca tctggtacac	20
342	<210> SEQ ID NO: 17	
343	<211> LENGTH: 20	
344	<212> TYPE: DNA	
345	<213> ORGANISM: Artificial Sequence	
	<220> FEATURE:	
349	<223> OTHER INFORMATION: Antisense Oligonucleotide	
351	<400> SEQUENCE: 17	
	atccagggtc tcatcaggag	20
	<210> SEQ ID NO: 18	
	<211> LENGTH: 20	
	<212> TYPE: DNA	
	<213> ORGANISM: Artificial Sequence	
	<220> FEATURE:	
	<223> OTHER INFORMATION: Antisense Oligonucleotide	
	<400> SEQUENCE: 18	
365	cccggagccc agagatcttc	20

10/5/6,505 (??
??
??
delete at end of file
??



DATE: 12/10/2004 TIME: 14:21:09

Input Set : A:\PTS-0055WO.txt

Output Set: N:\CRF4\12102004\J516505.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:71; N Pos. 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20

Seq#:75; N Pos. 727

Invalid Line Length:

The rules require that a line not exceed 72 characters in length. This includes spaces.

Seq#:1; Line(s) 8





DATE: 12/10/2004

TIME: 14:21:09

VERIFICATION SUMMARY

PATENT APPLICATION: US/10/516,505

Input Set : A:\PTS-0055WO.txt

Output Set: N:\CRF4\12102004\J516505.raw

L:12 M:270 C: Current Application Number differs, Replaced Current Application No L:12 M:271 C: Current Filing Date differs, Replaced Current Filing Date L:1007 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order! L:1011 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:71 L:1012 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:71 after pos.:0 L:1307 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:75, Line#:1305 L:1332 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:75 after pos.:720 L:3333 M:334 W: (2) Invalid Amino Acid in Coding Region, NUMBER OF INVALID KEYS:1 L:3335 M:336 W: Invalid Amino Acid Number in Coding Region, NUMBER OF INVALID KEYS:1 L:3337 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:233 L:3337 M:334 W: (2) Invalid Amino Acid in Coding Region, NUMBER OF INVALID KEYS:1 L:3339 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:233 L:3339 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:233 L:3339 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:233 L:3339 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:233 L:3339 M:334 W: (2) Invalid Amino Acid Number in Coding Region, NUMBER OF INVALID KEYS:1